

MINUTES
MURFREESBORO WATER AND SEWER BOARD
May 24, 2011

The Murfreesboro Water and Sewer Board (Board) met on Tuesday, May 24, 2011 in the conference room at the Operations & Maintenance Building, 1725 S. Church Street. Present at the meeting were Board members: Mr. John Sant Amour, Mr. Clay Beach, Dr. Al Carter, Mr. Blake Smith, Mr. Toby Gilley and Ms. Sandra Trail. Also present were Joe Kirchner, Darren Gore, Valerie Smith, Michele Pinkston, Susan McGannon, Kenny Diehl, Susan Rucinski, Keith Carpenter, Mark Lee, Jim Crumley, Alan Cranford, Richard Baines, Robert Lewis, Steve Pudlo, Linda Sullivan, Scott Woodard with Hazen Sawyer, Miles Mennel with Ameresco, along with other members of the public.

It was announced that the notice for the previous Hazen Sawyer workshop on the Wastewater Treatment Capacity and Effluent Disposal Study (Study) held April 22, 2011 was not printed in the local newspaper. Although the information was submitted on time, it failed to get in the paper. The Water and Sewer Board did give public notice at their previous board meeting on March 15, 2011 when it would be held. It was reflected in the Minutes. No votes were taken and no discussions were made at the special meeting with Hazen Sawyer on April 22nd. The Hazen Sawyer Study was again discussed April 26, 2011 at the regular Board Meeting and will probably be discussed at more Board meetings in the future.

The Consent Agenda was presented for the following considerations:

A. *Consider bids for the replacement of drum screens at the Sinking Creek Wastewater Treatment Plant (SCWWTP) Headworks Facility –*

Staff prepared bid documents and publically advertised requests for bids in the local newspaper for replacement of the referenced drum screens at the SCWWTP headworks facility. Bids were opened on May 17, 2011 at 2:00 p.m.

Two (2) respondents provided bids as tabulated below:

<u>BIDDER</u>	<u>TOTAL BID AMOUNT</u>
Richland, LLC	\$212,400.00
Cumberland Valley Constructors, Inc.	\$214,000.00

The Department has not worked with Richland, LLC in the past; however, upon review of their experience, they appear to be qualified to perform the work. Drums #1, #2 and #4 have been in service since 2002, and are considered at the end of their useful life. Drum Screen #3 experienced a catastrophic failure and was repaired under emergency purchase procurement procedures in September 2010. The Department purchased drum screen #3 and bid the labor to install the screen. The total amount to replace unit #3 was \$65,400. The Board approved \$200,000 to replace all four (4) screens at its February 2010 Board meeting and an additional \$100,000 at its January 2011 Board meeting. Given the \$65,400 already

spent provides a remaining approved balance of \$234,600. The low bid is below this previously approved amount.

Staff recommended that the Board recommend to City Council approval of \$212,400 for awarding the referenced construction contract. Funding was recommended to come from reserves.

B. Consider Work Change Directive #2 for Maney Avenue Street Improvements –

During the reconstruction of Maney Avenue, at the corner of Castle Street, it has been determined that Ted's Car Wash is discharging its wash water from the wash bay directly to the curb and gutter of the street. This is a gas station converted to a car detail shop. Per our NPDES permit, this is considered an illicit storm water discharge. Therefore, we are to connect the wash water discharge to the sanitary sewer main. In order to properly connect this discharge line, the 8" sanitary sewer main along Maney Avenue must be extended approximately 40 linear feet. Huddleston-Steele Engineering has prepared Work Change Directive No. 2 to direct the contractor, Charles DeWeese Construction, Inc., to proceed with the extension. This Work Change Directive will add approximately \$5,172.00 to the Department's contract amount for a total contract price of \$865,318.50 for the water and sewer main work. Unit prices from the contract will be used. A change order to officially add this work to the contract will be brought before the Board at a later date.

Staff recommended the Board recommend to City Council approval of the Work Change Directive.

Toby Gilley made a motion to approve the Consent Agenda. Dr. Carter seconded. The motion was unanimously approved.

The Board considered the minutes from the April 26, 2011 meeting. The Minutes were approved as presented.

The Board considered a recommendation on awarding the bid for the Southwest Area Repurified Elevated Water Storage Tank.

On Tuesday, May 3, 2011 bids were opened for the Southwest Area Repurified Elevated Water Tank project. Four bids were submitted. A list of bidders and bid amounts for the 1.5 million gallon composite water tank with a Hailo Service Lift are shown below:

Bidder	Division A	Division B	Total Base Bid
1. CB&I, Inc.	\$2,249,285.00	\$506,665.00	\$2,797,000.00
2. Caldwell Tanks, Inc.	\$2,539,450.00	\$288,460.00	\$2,840,000.00
3. Phoenix Fabricators & Erectors	\$2,415,450.00	\$372,600.00	\$2,848,050.00
4. Landmark Structures	\$2,554,000.00	\$475,000.00	\$3,080,000.00

Smith Seckman Reid, Inc. (SSR) recommended awarding the bid for the referenced project to the low bidder, CB&I, Inc. located in Alpharetta, Georgia.

The large demands associated with irrigating Old Fort Golf Course, Medical Center Parkway medians, the Avenue and Stones River Mall, just to name a few, have facilitated the Department to construct additional storage to increase the reliability of uninterrupted repurified water service to this area. The tank is designed to store 1.5 million gallons, and is categorized as a composite tank (i.e., a concrete pedestal with steel bowl), similar to the existing repurified tank at the Sinking Creek Wastewater Treatment Plant. The low bidder for the tank construction is CB&I, Inc. The total base bid recommended for award is \$2,797,000. The estimate for this project was \$3,050,000.

Also in a letter dated May 9, 2011 SSR proposed outside testing services associated with inspecting the tank and geotechnical and materials testing services be provided by Mid South Tank Consultants and TTL respectively.

The outside testing services recommended for approval are:

- TTL in the estimated amount of \$19,425 to observe geotechnical conditions, and to inspect and test during concrete work associated with the tank foundation and tank pedestal construction.
- Mid-South Tank Consultants in the estimated amount of \$14,060 to inspect and test tank erection and painting activities.

Staff recommended that the Board recommend to City Council approval of **\$2,797,000** for awarding the construction contract and approve an estimated **\$33,485** for professional outside services. Funding is recommended to come from an existing TML Loan (50368) with a remaining principal available of approximately \$2.5M and approximately \$330,000 from working capital. The tank and water line will be constructed from Medical Center Parkway back. The cost includes the water line and a road back to it. The useful life of the tank is approximately 50 years or more. Staff added that if actual costs for outside services exceed the estimated \$33,485, a request for an increase for these services would be brought to the Board. The Board asked if the Department expands repurified water service, will there be other storage tanks needed. It was indicated that this is the long term repurified water plan. Staff presented a drawing with lines in different colors to predict the current and future applications. It strictly would depend on the demand. It would be designed to the demand and the area in need of the service. Normally, these tanks are designed for one day's storage in the elevated tanks. The State requires this in a water system up to 10 million gallons and after that; you just have to show the need. It is estimated if there is a 16 million gallons a day demand, there would probably be more tanks. If, for some reason, the source from the wastewater plant is cut off, there is still a supply for users. For example, the golf course and the soccer complex and The Avenues use repurified water and are in need of an uninterruptable supply. If they lose irrigation in the summer losses and damage to landscaping and turf could be extensive. The golf course could lose the greens and fairways as well as other landscaping.

Toby Gilley made a motion to accept the recommendation. Dr. Carter seconded. The motion unanimously carried.

The Board reviewed information dated May 19, 2011 on an Energy Savings Performance Contracting feasibility study with Ameresco. Ameresco is one of the country's largest renewable energy savings planners and performance contractors. Staff is planning on authorizing them to conduct a free feasibility study for the Department. They are interested in conducting a feasibility study associated with energy conservation including advanced metering infrastructure (AMI) and automated meter reading (AMR) within our water system. The main interest of staff is to identify areas for energy savings and investigate replacing aging water meter infrastructure with advanced wireless water meters, allowing for enhanced customer service and improved water auditing capabilities, reducing unaccounted for water and increasing water sales revenue. It is important to note that Ameresco is independent from specific vendors, manufacturers or equipment brands.

The feasibility study is free of charge and includes a standard American Water Works Association (AWWA) water audit, as well as review of energy expenditures, and inspection of department buildings for facility analysis. The feasibility report is expected to take approximately two months. At time of delivery, staff will review Ameresco's preliminary recommendations. The City Legal Department has reviewed Ameresco's feasibility study proposal and has found no problem engaging them to perform the study free of charge. The feasibility study does not obligate the Department to contract any additional work with Ameresco; however, the Department may wish to retain Ameresco through a professional engineering services contract in the future under an energy savings performance contract (ESPC). It was suggested a place be designated on the engagement letter for Ameresco to sign acknowledging the information received for this study is to be considered strictly confidential and not to be shared with anyone else.

Sandra Trail made a motion for approval. Toby Gilley seconded. The motion was unanimously passed.

The Board considered potential funding of water and sewer projects through the State Revolving Fund Loan Program.

The State Revolving Loan Program maintains a Priority Ranking List (PRL) for both water and wastewater projects. Approximately \$75 million annually is loaned to Cities and Utility Districts, and Water and Wastewater Authorities for the planning, design, and construction of eligible water and wastewater projects. Cities, Utility Districts, and Water and Wastewater Authorities are invited each year to compete for funding. Only projects identified on the PRLs are eligible for low interest, flexible-term loans. Loans are awarded to projects with the highest priority points. Each year the Department submits projects to be considered for priority ranking. The Department submitted projects for the FY2011-2012 Clean Water State Revolving Fund Loan Program on February 18, 2011.

On May 3, 2011 a DRAFT Intended Use Plan (IUP) for FY2011-2012 was published by TDEC. The IUP has ranked several of Murfreesboro Water and Sewer Department projects as potentially eligible

for funding under the SRF Loan Program. The Southwest Relief Sewer 70-1 (\$6.7 M), the Southwest Regional Pumping Station (\$13.0 M), the Southwest Regional Force Main (\$11.0 M), and the Ultraviolet Disinfection Expansion at the Sinking Creek Wastewater Treatment Plant (SCWWTP) (\$1.5 M) appear to be ranked highly enough to receive SRF Loan funding. These projects total \$32.2 M with \$2.6 M identified as a green component that may be covered under a grant with no payback necessary. These estimates are conservative and the actual costs are expected to be lower based on the pricing the Department has received in recent construction bid lettings. The interest rate for a 20 year loan would be 2.39% plus a 0.08% administrative fee for a total 2.47%. The interest rate for a 15 year loan would be 1.93% plus a 0.08% administrative fee for a total 2.01%. The interest rate is based on Ability to Pay Index (ATPI) which is 60% for Murfreesboro. The interest rate is fixed at the time the loan is finalized. It is tied to the Bond Buyer 20 Index (BB120). For Murfreesboro the interest would be 60% of the Buyer 20 Index (BB120) rate at the time the loan is closed.

An application must be made for these funds to be made available around October 1, 2011. There is no obligation to apply for these loans. Subsequent projects in other communities on the ranking list would qualify for funding as communities elect not to apply for a higher ranked project in the list. Applying for and receiving funding for all the projects listed above would incur a maximum annual debt service of approximately \$1.88 M to \$2.04 M. The delta of \$160,000 is dependent on whether grants cover the \$2.6 M worth of green components identified.

This debt service for loans would be incurred over time as “draws” were made on the loan, and could potentially reach the maximums identified within a four (4) to five (5) year period as all the identified projects were completed. The Department has three Clean Water, State Revolving Fund Loans outstanding; SRF 96-089, SRF 92-040, and SRF 2000-148. A total of \$11,929,205 is budgeted for debt service in the upcoming FY2011-2012.

Recognizing that the Board is still deliberating the possibility of constructing a decentralized plant, the Southwest Regional Pump Station and Southwest Regional Force Main are designed to convey that wastewater to the existing Sinking Creek Wastewater Treatment Plant. This proposed pump station is to replace the existing screw lift station and will receive sewage generated in the southern service area of MWSD (including major corridors along Salem Hwy, Old Fort Pkwy, South Church St. and industries like General Mills). The Southwest Relief Sewer 70-1 was ranked as the number one priority project by TDEC for SRF Loan funding due to the fact that it is an upgrade necessary to serve the increasing sewerage demands required for future industrial development, reduction of infiltration and elimination of sanitary sewer overflows. This interceptor is an expansion of the Southwest Relief Sewer constructed from Old Fort Parkway to Warrior Drive. The sewage collected by Interceptor 70-1 would ultimately be conveyed by gravity to the proposed Southwest Regional Pumping Station. An approximate \$17.0 M expenditure has already been spent in the last ten (10) years by the Department to increase the

downstream section of the Southwest Relief Sewer from Old Fort Parkway to Warrior Drive to assimilate these foreseen and planned demands. The sewage delivered to the Sinking Creek Wastewater Plant (SCWWTP) from the Southwest Regional P.S. and Force Main was intended to be taken off the plant's main lift station into a new headworks facility. The new headworks facility is estimated to cost \$12.0 M and would need to be funded through another source. The decision to move forward with the central plant upgrade versus decentralized plant construction directly affect each of these projects and are dependent on the decisions made by the Board. Several of these projects have been pending for more than two (2) years awaiting the decisions regarding where to construct new treatment capacity within the system. The screw lift station at the Golf Course has exceeded its intended life expectancy as it was slated to be abandoned with the construction of the SW Regional P.S. In the interim next few years it will be necessary to make improvements to the screw lift station making it more reliable until the Southwest Regional P.S. and Force Main are constructed.

The fact that funding has become available through SRF at this time at such a good rate should be a factor in the Board's decision whether to proceed with these projects and do the headworks project at the SCWWTP. There has been no uncertainty that the SCWWTP plant must have some additional upgrades made to handle the existing flows coming to it as well as handling future flows capable of being delivered via the gravity interceptors already installed in areas primed for development. If the Board wishes, staff will make application at the appropriate time for the loans. Application may not necessarily obligate the Department to accept the loan. It's our understanding applications will be required in the near future.

The Board questioned the wording that "Application may not necessarily obligate the Department to accept the loan". Staff pointed out that there will be a point where we will have to commit. Staff also pointed out when we are obligated they will come to the Board with a written contract when we would be obligated.

Staff recommended making loan applications for all the eligible projects, however not committing until it is necessary to secure the loan.

John Sant Amour made a motion to approve. Toby Gilley seconded. The motion unanimously passed.

The Board directly received the following letter by email from Hazen Sawyer with recommendations and the next actions to be taken and schedule regarding the Wastewater Treatment Capacity and Effluent Disposal Study (Study).



Hazen and Sawyer, P.C.
3200 West End Avenue, Suite 500
Nashville, TN 37203
615-783-1515

May 23, 2011

Mr. John Sant Amour, Jr., Chair
Water and Sewer Board
City of Murfreesboro
111 West Vine Street
Murfreesboro, TN 37130

Re: Wastewater Treatment Capacity and
Effluent Disposal Study
Murfreesboro Water and Sewer Department

Mr. Sant Amour and Board Members:

On behalf of Hazen and Sawyer, thank you for the opportunity to present the findings of the Wastewater Treatment Capacity and Effluent Disposal Study at recent Board meetings. We appreciate and understand the importance of the decisions the Board must make concerning the future of wastewater treatment in the City. The path must be both fiscally responsible to the City's rate-payers and flexible for the long-term needs of the system. Our Study provides a detailed analysis of the available alternatives for both treatment and disposal. The decision regarding the path forward is difficult as there is not one alternative that is significantly more advantageous than the others in terms of cost and non-cost factors. In response to your request for further direction on these decisions, we offer this letter and its attachment.

Based on our work on this project and our experience throughout the southeast, the Murfreesboro sewer service area is large enough to warrant consideration of a second treatment facility. Given the projected growth, topography, and existing infrastructure, a second facility would likely be located in the Overall Creek basin or south/southwest of the City. Reviewing the results of our analysis of alternatives, the expansion of the Sinking Creek Wastewater Treatment Plant (SCWWTP) is also a valid decision that can take advantage of existing infrastructure. The disadvantages of expanding the SCWWTP are a reduction in long-term flexibility and the likelihood of pumping treated effluent a considerable distance for disposal. Unless land application facilities are only available far to the southwest of the service area, it is our recommendation that the City proceed with Alternative No. 8 - a plant re-rate to 20 mgd followed in the future by an expansion of the SCWWTP. If the City determines that the expansion of the SCWWTP is the best strategy moving forward, the option for satellite facilities could be reconsidered in 8-12 years as demand approaches the additional expanded capacity.

As part of our Study, we recommended several action items to help you move forward in the most cost-effective manner. Since the SCWWTP is already operating at its rated capacity, certain tasks should be initiated immediately. Several tasks may be performed in parallel to optimize schedule and flexibility. The recommended plan of action, as presented to the Board, includes:

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- Meet with TDEC to discuss planning limits for a seasonal / continuous discharge of an additional 4 mgd at the current West Fork Stones River outfall. A seasonal / continuous discharge of 4/6/8 mgd in the East Fork Stones River should also be discussed. Following the meeting, the City should formally apply for planning limits for these effluent disposal options.
- Commission a re-rating study of the SCWWTP to expand capacity to 20 mgd. As part of this study, a process sampling effort should be initiated to support the re-rating study and to construct and calibrate a biological process model.
- Initiate suggested sampling to identify secondary clarifier performance issues. The functionality of the clarifiers will be important for a plant re-rate and/or a plant expansion.
- Depending on feedback from TDEC on re-rating of the SCWWTP, consider additional tertiary filters to increase plant reliability at both the current design flow and the re-rated design flow. TDEC may also suggest other reliability improvements that should be investigated.
- Identify additional land application disposal sites and begin the appraisal process. The services of a hydrogeologist during site review will help to determine the potential hydraulic capacity of the property.
- Address current chronic sewer overflows by considering a new SCWWTP headworks facility and/or the proposed SW/NE regional pump stations. The Department is currently completing a hydraulic model of the affected areas, the results of which should help identify the infrastructure improvements that will best help the problem. The design of a new headworks facility and new regional pump stations will be impacted by the decision of expanding the SCWWTP versus building a second treatment plant. Although design and construction could proceed without a final decision, a known direction forward will result in a more well-defined and cost-effective design.
- Discuss with TDEC about commissioning a water quality model to evaluate the long-term feasibility of increased assimilative capacity in West Fork Stones River, East Fork Stones River, and/or Overall Creek. Although the ability to discharge additional flow to local surface waters has been limited by TDEC, our experience has shown that the potential outcome of delaying the need for additional land application sites can outweigh the cost of the modeling study.

We have attached a schedule showing the main decisions and the estimated timing of these decisions. This schedule should serve as a guide to the Board for the short- and long-term decisions that are required to ensure sufficient wastewater treatment and disposal capacity.

We are pleased to have been selected as part of your team for this extremely important study. We have enjoyed working with the City and look forward to additional opportunities to continue our relationship. If you have any questions concerning engineering services associated with the recommended plan of action, please do not hesitate to contact us. We are proud of the

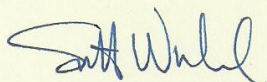
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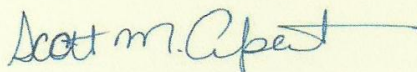
Wastewater Treatment Capacity and Effluent Disposal Study and hope that you have found it exceeded your expectations.

Very truly yours,

HAZEN AND SAWYER, PC



Scott Woodard, PE
Project Manager



Scott M. Alpert, PhD, PE
Technical Manager

Cc: Joe Kirchner, PE, Murfreesboro Water and Sewer Department
Mary Sadler, PE, Hazen and Sawyer
Gary Haubner, PE, Hazen and Sawyer

Based on Hazen Sawyer's (HS) May 23, 2011 letter, staff identified in the following memo immediate and short-term recommendations in moving the Department forward in increasing treatment capacity and effluent disposal options.



MEMORANDUM

DATE: May 24, 2011
TO: Water and Sewer Board
FROM: Joe Kirchner, Director
SUBJECT: Staff Recommendations based on Hazen and Sawyer Recommendations
Wastewater Treatment Capacity and Effluent Disposal Study

Based on Hazen and Sawyer's (H&S) May 23, 2011 memorandum, staff would offer the following immediate and short-term recommendations in moving the Department forward in increasing our treatment capacity and effluent disposal options:

1. Meet immediately with the Tennessee Department of Environment and Conservation (TDEC) to discuss all possibilities for increased discharge in the W. Fork Stones River, adding a new continuous or seasonal discharge into the E. Fork of the Stones River, and discuss a hybrid effluent land application model that TDEC recently permitted.

There is a Smith Seckman and Reid (SSR) work order (SSR 09-47-001.0) for the Evaluation of Discharge Options for the Sinking Creek Wastewater Treatment Plant (WWTP) which was approved by Board and Council in 2009. This work order was suspended until November 2009 when SSR drafted a letter to TDEC outlining potential discharge and treatment strategies. This was in preparation of publishing the Request for Proposals (RFP) for the Wastewater Treatment Capacity and Effluent Disposal Study. A copy of the March 11, 2010 response from TDEC was included in the RFP. Since the current NPDES permit expired in April, staff submitted the application in March of this year without modification (i.e., as previously submitted in 2006) to meet the deadline associated with our permit renewal. Staff's permit renewal application did not introduce any of the findings associated with Hazen and Sawyer's study.

The following Scope of Services of the current work order, which is still relevant, included the following:

- Meet with OWNER, the Tennessee Department of Environment and Conservation and the United States Army Corps of Engineers (COE) to discuss potential strategies for the beneficial use and responsible disposal of the effluent from the SCWWTP.
- Endeavor to formulate discharge strategies that allow flexibility to account for seasonal variations in weather and stream flow.
- Submit Requests for Planning Limits to TDEC for these discharge strategies.
- Determine from these meetings the appropriate submittal information for submission of the permit applications.
- Work with OWNER to obtain and tabulate all necessary data regarding current discharge quantities and quality, industrial contribution, and stream flow data.
- Prepare all relevant correspondence and permit forms for submission to TDEC and COE on behalf of OWNER.
- Attend any Public Hearings or Meetings required as part of the application process.

There is an existing financial commitment already invested in this work order, therefore staff recommends proceeding with this work order with SSR as may be modified based on the Study. SSR's expertise in negotiating discharge strategies with TDEC has proven to be very successful. In 2006 they were successful in negotiating TDEC to reduce the ammonia limits which are in our current permit. SSR recently negotiated increased effluent discharge on behalf of the City of Pigeon Forge which will result in an increased 50% rate of flow from Pigeon Forge's wastewater treatment plant into the Little Pigeon River; a 303D listed (i.e., impaired) receiving stream.

Additionally, TDEC advised Murfreesboro Water and Sewer Department (MWSD) staff at our meeting with them on September 24, 2009 with Site Engineering Consultants (SEC) that they were working with the Hemlock Semiconductor plant in Clarksville, TN on a hybrid effluent land application model that would allow continuous spray irrigation. TDEC advised that the Hemlock permit would view land application discharge as entering the receiving stream of Spring Creek only during qualifying rain events. This is a pure mass loading permit that became effective January 1, 2010. The bottom line to MWSD is that it could greatly impact the amount of property necessary to meet TDEC's permitting requirements on our effluent disposal volume.

At the end of the day, the timeline associated with improvements to plant infrastructure and acquiring property for effluent disposal will be determined on staff's dialog with TDEC and TDEC's direction and the possibility of providing the Murfreesboro Water and Sewer Department the same appropriations they've made to the City of Pigeon Forge and the Hemlock Semiconductor NPDES discharge permits. Therefore, staff doesn't recommend hiring appraisers or realtors until a negotiated discharge strategy is worked out verbally with TDEC.

2. Proceed with making application for a State Revolving Loan for the construction of the Southwest Regional Pumping Station and Force Main.

Proceed immediately with acquiring the necessary land acquisition necessary for the construction of the Southwest Regional Pumping Station and Force Main. In conjunction with this project, resume work on SSR Work Order No. 09-47-003.0 that allows SSR to continue design of a new headworks facility at SCWWTP to receive the sewage from the SW Regional P.S. and the re-routed sewage from the Overall Creek P.S. This will include an evaluation of “right sizing” the new headworks. This project addresses two (2) critical items – one, replacement of the existing dilapidated screw lift station at Old Fort Golf Course, and two, the recurring overflows currently experienced at the manhole immediately upstream of the SCWWTP located next to Thompson Lane.

A new headworks facility, using step screen technology, would allow taking all the flow from the SW Regional P.S. off the existing high service pump station, thereby increasing the capacity of the high service station with expectations of mitigating the overflows on the existing thirty (30) inch Sinking Creek Interceptor. **Note that the overflows on the Sinking Creek Interceptor are the single most influential element within the Department’s wastewater treatment, collection and disposal system that has the potential to interrupt the City’s ability to do “business as usual” by prohibiting growth through a moratorium on permitting new sanitary sewer connections.**

A new headworks facility would also allow refurbishing of the existing headworks building, with step screen technology. The existing headworks facility is in a condition warranting renovation due to its aggressive corrosive environment. The renovation could be phased to be completed at the most advantageous time and as needed.

3. Based on discussions with TDEC prepare a competitive request for proposals to evaluate professional service respondents to conduct a water quality model to evaluate the long-term feasibility of increased assimilative capacity in the West Fork and East Fork Stones River, and possibly Overall Creek.

Staff would look to the Board as to whether Hazen and Sawyer would be allowed to submit on this RFP as the Wastewater Treatment Capacity and Effluent Disposal study states the following with regards to their acceptance in its preparation:

Acceptance of preparing the Wastewater Treatment Capacity and Effluent Disposal Study by Respondent shall entail acknowledgement that no future design work shall be solicited or awarded by Respondent based on the findings of the study. The intent of this provision is to solicit the fairest and most unbiased opinion as to the direction taken by the Department with no potential for self-interest conflicts involving recommendations that could lead to possible design opportunities by Respondent.

4. In the Thompson Lane Collection System Overflows, Corrective Action Plan Technical Memo dated January 4, 2011 SSR recommended bench testing coagulants to enhance high flow settleability, preventing “washout” in SCWWTP’s secondary clarifiers. SSR work order 10-47-028.0 Sinking Creek and Stones River Interceptors Hydraulic Modeling resulted from this memo. The memo was reviewed by Hazen Sawyer and presented to the Board in January 2011. At the suggestion of Hazen and Sawyer the coagulant evaluation was not included in the work order. They are now recommending this study to proceed. It is recommended the work order be amended to include the settleability study as pertaining to SCWWTP’s secondary clarifier performance as SSR submitted in the proposal to do this study in conjunction with the hydraulic modeling they are currently performing. Staff recommends assigning this additional task to SSR’s existing modeling work order due to their knowledge base associated with the plant hydraulics and treatment processes as well as the proposed high service pump station and headworks modifications.

Meeting with TDEC is paramount in developing a realistic schedule. Land acquisition is contingent on negotiations with TDEC. Allowances have been made by TDEC in their permitting approvals that may lessen the impact associated with land acquisition. All currently discussed alternatives associated with Hazen and Sawyer’s study involves upgrades to the central Sinking Creek plant. Staff requests approval to proceed with the aforementioned recommendations. Staff is available for questions.

End of Memo

After distribution of the above memo Mr. Kirchner informed the Board there is currently an existing work order with Smith Seckman Reid described in the memo for the evaluation of discharge options at the Sinking Creek Wastewater Treatment Plant. A letter was prepared with discharge options and sent to the State. A meeting should be scheduled with TDEC to formulate the discharge strategies, request planning limits in what we can get, supply them with information; SSR would work with us to tabulate the necessary data, prepare all of the relevant correspondence and permit criteria, attend any public hearings.

Recently, Smith Seckman Reid was successful in negotiating increased influent discharge on behalf of the City of Pigeon Forge, which resulted in a 50% increase in their rate, into a 303D listed stream. There is also the Hemlock Semiconductor plant in Clarksville, TN on a hybrid effluent land application model that would allow continuous spray irrigation that we would like to pursue to see what would be available for it. Staff did not see a need to aggressively acquire properties for disposal at this point until a more detailed strategy as approved by TDEC. Staff will continue with the permit pre-application process.

Staff recommends proceeding with acquiring the necessary easements required for the South West Force Main. Using federal money through the SRF requires acquisition based on Federal Regulations. Easement acquisition will take some time; work was suspended on a new headworks as Study was in process. At that time, staff was analyzing right sizing the process and using step screens to

retrofit the drum screens. Staff feels the step screens are going to be less expensive and easier to operate than the drum screens now in use. Staff feels this is important in having the SW Force Main discharging into the proposed new headworks in order to reduce the flow to the raw pump station. By installing a new headworks, the old can be refurbished with fewer operational problems. New screens are now being installed, so there will be some time before the existing headworks would need to be reworked.

Hazen Sawyer has recommended conducting a water quality model on the West Fork to evaluate the long term feasibility of increased assimilative capacity in West Fork Stones River, East Fork Stones River, and/or Overall Creek. Although the ability to discharge additional flow to local surface waters has been limited by TDEC, experience shows the potential outcome (delaying the need for additional land application sites) can outweigh the cost of the modeling study.

Staff recommends a Request for Proposals be prepared for this scope of services in order to solicit proposals from qualified engineering firms. Stream modeling is specialized work requiring experienced and qualified professionals. Stream modeling is also a lengthy process since the stream is assessed at different seasons and flow rates.

Staff also recommends proceeding with the Thompson Lane Collection System Overflow Correction Plan based on the proposal that Smith Seckman and Reid presented with their work order for the hydraulic modeling. A meeting with TDEC will be required to finalize the scope of the work that will be acceptable. Blake Smith made a point that in the Study the Department hired Hazen Sawyer to do, there were some new ideas that came to light. There was an ability shown to get 20 million gallons a day with some minimal effort that wasn't brought up in the past. He wondered if there was a possibility to get proposals from other design firms for all of the work.

Joe Kirchner explained that in the past SSR has always provided the most competitive pricing for the level of services and expertise provided. In addition, they are the best qualified to perform the work because of their long term knowledge of the water and wastewater systems. They have all the necessary skill sets in their Nashville office that is required for wastewater treatment process and plant design. We have current contracts in place that were in process until suspended while the Study was completed. Staff feels it prudent to proceed with those current contracts. RFPs will be requested for other work, such as the stream study.

The Southwest Regional Pumping Station and Force Main have been designed. The contract amount for the SSR work order for the discharge strategy and permitting is \$24,000. About half of that had been spent when the work was suspended.

SSR also currently has a work order for design services for the headworks building with an estimated design fee of \$691,000, of which \$145,000 have been spent to date. SSR started the design then staff asked them to suspend their work. They are the most familiar with the hydraulics through the plant and the hydraulics into the plant.

Blake Smith stated he would like to see a compiled list of projects that SSR is going to be authorized to do over the next number of years. He feels that it is a competitive world and SSR is just being handed jobs.

Joe Kirchner mentioned the Department did exactly as he is suggesting for the water plant design and sought a competitive proposal. The original engineering firm contracted was terminated based on high fees without a noticeable difference in ability and product. Smith Seckman Reid provided the design for phase two of the work.

There has been a history of attempts to bring in other firms that seemed more regional; however, fees are usually higher, design teams are in other locations, whereas everything with SSR is here and they are available and reliable. They are at the plant frequently helping the Department and monitoring its performance keeping historical trending. There is a benefit to having a long standing relationship with a firm. SSR is not asked to do subdivision work. They are not asked to do much collection work, other than large interceptors. Mr. Kirchner stated that when it comes to plant process design, hydraulic modeling and multi-disciplined work, SSR is believed to be the best firm at this time. If there is a project that someone else has a better toolbox and skills to perform the scope of work, and who can do it in a timelier basis, or do it cheaper, they will be asked to submit a proposal.

With the contracts already in place with SSR and with the work they have done and the familiarity they have with the system, staff believes the logical step is to resume those work orders associated with the aforementioned recommendations. The Department has demonstrated success with the current plant design and operation; this model has been replicated by more than a dozen plants. Staff is always looking for innovations, things to make it easier to operate and less costly. The Department receives the best value for services provided and the level of expertise available from SSR. SSR provides supplemental services at no costs.

Blake Smith stated it would be beneficial to the Board if we had a timeline similar to the flow chart Hazen Sawyer presented from Smith Seckman Reid.

Joe Kirchner agreed, stating that once Hazen Sawyer comes up with a proposed timeline for each component, then that can certainly be done.

Staff has always prepared a five year capital plan which was submitted to and approved by the Board and City Council. It is what we follow and were following until it was suspended awaiting the completion of the Hazen Sawyer Study.

Blake Smith stated that the headworks plant and oxidation ditch design have a timeline and estimated value with them and it would be very beneficial as a Board member to know these. He stated that it would be a great benefit for us to be aware of the costs coming and requested that projects that can be done by other local firms have the opportunity, when possible. It is important that the Board has some chronological idea of when things are going to occur, so that it is not a surprise all of the time.

Joe Kirchner reminded the Board that it had adopted a 201 Facilities Plan that that we have had for many years. This is the plan that we have followed from which the five year CIP is prepared and from which engineering and capital costs are estimated. Each year a 5-year CIP is prepared and modified to meet the system's projected demands.

Joe Kirchner responded to Mr. Smith's request and felt putting together the Flow Chart of Task of Engineering and Constructions needs would certainly be appropriate. Staff reported that the Department is retiring a \$300,000 annual debt service this year. That will be put into a reserve for future debt service. We now need to start planning for future debt service so when we need the estimated \$2 million annual debt requirement it is available.

Sandra Trail asked questions related to the May 24, 2011 memo from Joe Kirchner to the Board (see memo above), specifically the SSR work order for a permit. This has to be done first. Staff addressed that this is part of the strategy to refine what will be required. The Department will receive planning limits from TDEC. This is an exploratory fact finding process with TDEC to refine that down to the discharge strategies that would be acceptable. There was discussion involving more study on the re-rate study. There was nothing about this in Hazen Sawyer's initial scope of service.

Mr. Kirchner stated the application for the State Revolving Loan for the construction of the Southwest Regional Pumping Station and Force Main needs to be settled. The appraisals on the easements have expired. If we are going to receive federal money, it is an all together different acquisition process that will have to be started soon. The Pump Station plans are ready to bid.

Proceeding with a new headworks facility will allow us to take all the flow from the SW Regional P.S. off the existing high service pump station, thereby increasing the capacity of the high service station with expectations of mitigating the overflows on the existing thirty (30) inch Sinking Creek Interceptor. A new headworks facility will also allow refurbishing of the existing headworks building that is in a condition warranting renovation due to its aggressive corrosive environment.

Funding for this project has been designated from Reserve. The design fees for the pump station and force main are \$1 million. This is based on an estimate. The final design fee will be based on a percent of construction. We have spent approximately \$800,000 to date with plans and bid documents complete. The remainder of engineering services will be bidding and contract administration expense.

There was a question regarding Hazen Sawyer's proposal to identify additional land application disposal sites and begin the appraisal process. Staff will need to find a methodology for the identification and analysis of the suitability of sites. The amount of land and location needs to be more defined. More research needs to be done on land based on soils and locations.

Toby Gilley made a motion to approve the first three recommendations outlined in the Memo to the Board from Joe Kirchner dated May 24, 2011.

John Sant Amour seconded the motion which was unanimously passed.

The Board discussed and considered the Murfreesboro Water and Sewer Department and Stormwater Department Budgets for fiscal year 2011/2012.

Staff recommended that the Board recommend the Budget to City Council and to authorize the City Attorney to prepare an ordinance that would reduce the allowance for 5/8" meter from 150 to 100 cubic feet and reduce all other meter sizes by 100 cubic feet. The water and sewer rates will not change.

Toby Gilley made a motion to accept staff's recommendation. Clay Beach seconded. The motion passed unanimously.

There being no further business, the meeting was adjourned.

John Sant Amour, Chairman